



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/521,829	08/01/2005	Stephen A. Payne	30101.188	2411
36845	7590	02/12/2008		
CLIFF D. WESTON			EXAMINER	
MICROBAN PRODUCTS COMPANY			KHAN, AMINA S	
1115 VANSTORY DRIVE				
SUITE 125			ART UNIT	PAPER NUMBER
HUNTERSVILLE, NC 28078			1796	
			NOTIFICATION DATE	DELIVERY MODE
			02/12/2008	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

CLIFF.WESTON@MICROBAN.COM
patent@microban.com
cust36845@microban.com



UNITED STATES PATENT AND TRADEMARK OFFICE

Commissioner for Patents
United States Patent and Trademark Office
P.O. Box 1450
Alexandria, VA 22313-1450
www.uspto.gov

**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Application Number: 10/521,829
Filing Date: August 01, 2005
Appellant(s): PAYNE, STEPHEN A.

Cliff D. Weston
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed October 31, 2007 appealing from the Office action mailed September 21, 2006.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

No amendment after final has been filed.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

US 6,110,950	Pillay	3-1999
US 5,290,810	Austin	9-1991
US 5,888,415	Rother et al.	3-1999
US 6,228,382	Lindner et al.	5-2001
US 5,087,457	Bryant et al.	1-1990

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

1. Claims 23-28,31-35,37-39,41,44-47,50-53,55,58-65 and 68 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pillay (US 6,110,950) in view of Austin (US 5,290,810).

Pillay teaches methods of treating leathers with propiconazole and 2-mercaptobenzothiazole in ratios of 99:1 to 1:99 to control the growth of microorganisms on a hide during the tanning process (column 5, lines 1-40). Pillay further teaches treating leathers with 0.5 to 10,000 parts per million of these compounds on leather (column 4, lines 45-65). Pillay further teaches that microbicidal compositions may be applied at any stage during a tanning process that includes, but is not limited to, a pickling stage, a chrome-tanning stage, a vegetable-tanning stage, a retanning stage, a dyeing stage, and a fat liquoring stage (column 5, lines 52-59). Pillay does not

specifically disclose exhausting the treatment to the leather but in example 1 (page 8) describes a method in which hides are drummed with the compositions until they penetrate the leather, the equivalent of exhausting.

Pillay does not teach methods comprising biguanide bactericides, isothiazolinones, quaternary ammonium compounds. Pillay does not teach finishing leather to produce shoes, boots, clothing articles made from the leather.

Austin teaches treating leather with biocidal compounds for improved antibacterial properties, wherein the compounds comprise isothiazolinones, quaternary ammonium compounds, polyhexamethylene biguanide, mercaptobenzothiazole and di-iodomethyl-paratolylsulphone (column 5, lines 29-40; column 6, lines 5,11,21 and 34).

It would have been obvious to one of ordinary skill in the art at the time the invention is made to modify the leather treating methods taught by Pillay by substituting polyhexamethylene biguanide for mercaptobenzothiazole because Austin teaches the functional equivalence of these compounds. The substitution of art recognized equivalents only requires routine skill in the art. It would further have been obvious to include isothiazolinones, quaternary ammonium compounds and di-iodomethyl-paratolylsulphone in the methods taught by Pillay because Austin teaches the antimicrobial benefits imparted to leather when treated with these components.

It is *prima facie* obvious to combine the references, each taught for the same purpose, to yield a third composition for that very purpose. *In re Kerkhoven*, 205 USPQ 1069, *In re Pinten*, 173 USPQ 801, and *In re Susi*, 169 USPQ 423 when ingredients are well known and combined for their known properties, the combination is obvious absent

unexpected results. A person of ordinary skill in the leather art would expect combinations of these materials to behave in the same fashion as the individual materials, absent unexpected results.

It would further have been obvious to finish leather to produce clothing, footwear, etc. from the leathers produced by Pillay in view of Austin because it is conventional in the art to make these articles from tanned leather. The burden is on the applicant to prove otherwise.

Regarding the percentages of fungicides and bactericides taught by Pillay, it would have been obvious to one of ordinary skill in the art at the time the invention was made to select the portion of the Pillay's ranges which are within the range of applicant's claims because it has been held to be obvious to select a value in a known range by optimization for the best results. As to optimization results, a patent will not be granted based upon the optimization of result effective variables when the optimization is obtained through routine experimentation unless there is a showing of unexpected results which properly rebuts the *prima facie* case of obviousness. See *In re Boesch*, 617 F.2d 272, 276, 205 USPQ 215, 219 (CCPA 1980). See also *In re Woodruff*, 919 F.2d 1575, 1578, 16 USPQ2d 1934, 1936-37 (Fed. Cir. 1990), and *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955). In addition, a *prima facie* case of obviousness exists because the claimed ranges "overlap or lie inside ranges disclosed by the prior art", see *In re Wertheim*, 541 F.2d 257, 191 USPQ 90 (CCPA 1976); *In re Woodruff*, 919 F.2d 1575, 16USPQ2d 1934 (Fed. Cir. 1990). See MPEP 2131.03 and MPEP 2144.05I.

Regarding the order of steps in the leather treating process taught by Pillay, changing the order of steps does not render a claimed process nonobvious over the prior art, see *Ex parte Rubin*, 128 USPQ 440, 441, 442 (POBA 1959). "As a general rule, no invention is involved in the broad concept of performing simultaneously operations which have previously been performed in sequence ." *In re Tatincloux and Guy*, 108 USPQ 125(CCPA 1955). Furthermore, repeating steps multiple times requires only routine skill in the art.

2. Claims 42,43,56,57,66 and 67 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pillay (US 6,110,950) in view of Austin (US 5,290,810), as applied to the claims above, and further in view of Rother et al. (US 5,888,415).

Pillay and Austin are relied upon as set forth above.

Pillay and Austin do not teach methods comprising thiabendazole, tebuconazole and triclosan.

Rother et al. teach preservation of animal hides by treating the hides with propiconazole, tebuconazole, thiabendazole. Rother et al. teach these treatments protect leathers against infections (column 1, lines 1-65).

It would have been obvious to one of ordinary skill in the art at the time the invention is made to modify the leather treating methods taught by Pillay and Austin by substituting tebuconazole or thiabendazole for propiconazole because Rother teaches the functional equivalence of these compounds. The substitution of art recognized equivalents only requires routine skill in the art. It would further have been obvious to

include these components in the methods taught by Pillay because Rother teaches the protection against infection and damage imparted to leathers treated with these components. One of ordinary skill in the art would be motivated to combine the teachings of the references absent unexpected results.

It is *prima facie* obvious to combine the references, each taught for the same purpose, to yield a third composition for that very purpose. *In re Kerkhoven*, 205 USPQ 1069, *In re Pinten*, 173 USPQ 801, and *In re Susi*, 169 USPQ 423 when ingredients are well known and combined for their known properties, the combination is obvious absent unexpected results. A person of ordinary skill in the leather art would expect combinations of these materials to behave in the same fashion as the individual materials, absent unexpected results.

3. Claims 40 and 54 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pillay (US 6,110,950) in view of Austin (US 5,290,810) as applied to the claims above, and further in view of Lindner et al. (US 6,228,382).

Pillay and Austin are relied upon as set forth above.

Pillay and Austin do not teach methods comprising zinc-2-pyridinethiol-1-oxide.

Lindner et al. teaches treating leather (column 5, lines 40-45) with zinc pyrithione or propiconazole to provide micobiocidal benefits (column 4, lines 1-5).

It would have been obvious to one of ordinary skill in the art at the time the invention is made to modify the leather treating methods taught by Pillay and Austin by substituting zinc pyrithione for propiconazole because Lindner teaches the functional

equivalence of these compounds. The substitution of art recognized equivalents only requires routine skill in the art. One of ordinary skill in the art would be motivated to combine the teachings of the references absent unexpected results.

It is *prima facie* obvious to combine the references, each taught for the same purpose, to yield a third composition for that very purpose. *In re Kerkhoven*, 205 USPQ 1069, *In re Pinten*, 173 USPQ 801, and *In re Susi*, 169 USPQ 423 when ingredients are well known and combined for their known properties, the combination is obvious absent unexpected results. A person of ordinary skill in the leather art would expect combinations of these materials to behave in the same fashion as the individual materials, absent unexpected results.

4. Claim 49 is rejected under 35 U.S.C. 103(a) as being unpatentable over Pillay (US 6,110,950) in view of Austin (US 5,290,810) as applied to the claims above, and further in view of Bryant et al. (US 5,087,457).

Pillay and Austin are relied upon as set forth above.

Pillay and Austin do not teach methods comprising poly(oxyethylene(dimethylimino)ethylene(dimethylimino)ethylene dichloride).

Bryant et al. teaches treating leather with poly(oxyethylene(dimethylimino)ethylene(dimethylimino)ethylene dichloride) to provide micobiocidal benefits (column 7, claims 1-3).

It would have been obvious to one of ordinary skill in the art at the time the invention is made to modify the leather treating methods taught by Pillay and Austin by

incorporating poly(oxyethylene(dimethylimino)ethylene(dimethylimino)ethylene dichloride) because Bryant teaches improved antimicrobial benefits provided to leather by using these compounds. One of ordinary skill in the art would be motivated to combine the teachings of the references absent unexpected results.

It is *prima facie* obvious to combine the references, each taught for the same purpose, to yield a third composition for that very purpose. *In re Kerkhoven*, 205 USPQ 1069, *In re Pinten*, 173 USPQ 801, and *In re Susi*, 169 USPQ 423 when ingredients are well known and combined for their known properties, the combination is obvious absent unexpected results. A person of ordinary skill in the leather art would expect combinations of these materials to behave in the same fashion as the individual materials, absent unexpected results.

(10) Response to Argument

5. Response to applicant's argument A.1 Claim 23 and Claims 24-28,31,34,35,37-39 and 44.

The applicant argues that combination of Pillay (US 6,110,950) in view of Austin (US 5,290,810) is improper because one of ordinary skill in the art would not have been motivated to substitute a component of a synergistic composition without a teaching that the synergism would be maintained.

The examiner asserts that the substitution of one known microbicidal compound for another functionally equivalent known microbicidal compound would have yielded predictable results to one of ordinary skill in the art at the time the invention was made.

Specifically, Pillay teaches microbicidal compositions comprising propiconazole, applicant's claimed fungicide, and mercaptobenzothiazole, for treating leather by the instantly claimed methods, however does not teach the instantly claimed biguanide bactericide. Austin, in the analogous art of treating leather to prevent bacteria and fungicide formation, clearly teaches mercaptobenzothiazole and polyhexamethylene biguanide as functionally equivalent antimicrobial compounds. Because both Pillay and Austin teach compounds for the microbicidal treatment of leather, it would have been obvious to one of ordinary skill in the art to substitute polyhexamethylene biguanide for mercaptobenzothiazole in the methods of Pillay because of the Austin teaching that these compounds are functionally equivalent for the purpose of providing antimicrobial benefits to leather.

Regarding applicant's arguments of destroying synergism, the examiner asserts that applicant has provided no basis for the arguments that one of ordinary skill in the art would not expect functionally equivalent compounds to also confer synergistic effects or additive effects. The examiner argues quite the opposite, rather that the teaching of Austin reciting that the use of a mixture of anti-microbial compounds can provide a broader anti-microbial spectrum and hence one more generally effective than the individual components thereof (column 5, lines 24-30) and the teachings of both mercaptobenzothiazole and polyhexamethylene biguanide by Austin in the list of such compounds suggests that an synergistic or additive effect may be quite likely and additional antimicrobial compounds would be quite desirable.

Regarding applicant's arguments that because polyhexamethylene biguanide and mercaptobenzothiazole are not homologs, analogs, isomers or structurally similar that substitution of one for the other would not be expected to provide synergism. Again the examiner cites the teachings in Austin which disclose a variety of nonhomologous, nonanalogous, nonisomeric and structurally dissimilar compounds which in combination would provide increased antimicrobial benefits to leather than when used alone. Without clear experimental evidence that the synergistic or additive effects would be destroyed by substitution of known microbicide for another the applicant's arguments are conclusory. Applicants' arguments are conclusory statements not supported by factual evidence, see *In re Lindner*, 457 F.2d 506, 173 USPQ 356 (CCPA 1972).

6. Response to applicant's argument A.2 Claim 45 and Claims 46-47, 49-51 and 58-61.

Dependent Claims 45-47,49-51 and 58-61 rise or fall with the decision as to independent Claim 45. The examiner reiterates in full her previous remarks recited in paragraph 5. For the same reasons one of ordinary skill in the art would have been motivated to combine the teachings of Pillay and Austin to arrive at synergistic or additively beneficial antimicrobial compositions for the effective treatment of leather. One of ordinary skill in the art would have found it obvious to try the substitution of one known microbicide for another functionally equivalent known microbicide with an expectation of synergistic or additive antimicrobial effects due to the teachings of Austin reciting that the use of a mixture of anti-microbial compounds can provide a broader

anti-microbial spectrum and hence one more generally effective than the individual components thereof.

7. Response to applicant's argument A.3 Claim 32.

Claim 32 depends from independent claim 23. The examiner reiterates in full her previous remarks recited in paragraph 5. For the same reasons one of ordinary skill in the art would have been motivated to combine the teachings of Pillay and Austin to arrive at synergistic or additively beneficial antimicrobial compositions for the effective treatment of leather. One of ordinary skill in the art would have found it obvious to try the substitution of one known microbicide for another functionally equivalent known microbicide with an expectation of synergistic or additive antimicrobial effects due to the teachings of Austin reciting that the use of a mixture of anti-microbial compounds can provide a broader anti-microbial spectrum and hence one more generally effective than the individual components thereof, with polyhexamethylene biguanide, mercaptobenzothiazole, diiodomethyl-paratolyl sulphone being taught as examples.

8. Response to applicant's argument A.4 Claim 52.

Claim 52 depends from independent claim 45. The examiner reiterates in full her previous remarks recited in paragraphs 5 and 7. For the same reasons one of ordinary skill in the art would have been motivated to combine the teachings of Pillay and Austin to arrive at synergistic or additively beneficial antimicrobial compositions for the effective treatment of leather. One of ordinary skill in the art would have found it obvious to try

the substitution of one known microbicide for another functionally equivalent known microbicide with an expectation of synergistic or additive antimicrobial effects due to the teachings of Austin reciting that the use of a mixture of anti-microbial compounds can provide a broader anti-microbial spectrum and hence one more generally effective than the individual components thereof, with polyhexamethylene biguanide, mercaptobenzothiazole, diiodomethyl-paratolyl sulphone being taught as examples.

9. Response to applicant's argument A.5 Claim 33.

Claim 33 depends from independent claim 23. The examiner reiterates in full her previous remarks recited in paragraphs 5 and 7. For the same reasons one of ordinary skill in the art would have been motivated to combine the teachings of Pillay and Austin to arrive at synergistic or additively beneficial antimicrobial compositions for the effective treatment of leather. One of ordinary skill in the art would have found it obvious to try the substitution of one known microbicide for another functionally equivalent known microbicide with an expectation of synergistic or additive antimicrobial effects due to the teachings of Austin reciting that the use of a mixture of anti-microbial compounds can provide a broader anti-microbial spectrum and hence one more generally effective than the individual components thereof, with polyhexamethylene biguanide, mercaptobenzothiazole, diiodomethyl-paratolyl sulphone being taught as examples.

10. Response to applicant's argument A.6 Claim 53.

Claim 53 depends from independent claim 45. The examiner reiterates in full her previous remarks recited in paragraphs 5 and 7. For the same reasons one of ordinary skill in the art would have been motivated to combine the teachings of Pillay and Austin to arrive at synergistic or additively beneficial antimicrobial compositions for the effective treatment of leather. One of ordinary skill in the art would have found it obvious to try the substitution of one known microbicide for another functionally equivalent known microbicide with an expectation of synergistic or additive antimicrobial effects due to the teachings of Austin reciting that the use of a mixture of anti-microbial compounds can provide a broader anti-microbial spectrum and hence one more generally effective than the individual components thereof, with polyhexamethylene biguanide, mercaptobenzothiazole, diiodomethyl-paratolyl sulphone being taught as examples.

11. Response to applicant's argument A.7 Claim 41.

Claim 41 depends from independent claim 23. The examiner reiterates in full her previous remarks recited in paragraphs 5 and 7. For the same reasons one of ordinary skill in the art would have been motivated to combine the teachings of Pillay and Austin to arrive at synergistic or additively beneficial antimicrobial compositions for the effective treatment of leather. One of ordinary skill in the art would have found it obvious to try the substitution of one known microbicide for another functionally equivalent known microbicide with an expectation of synergistic or additive antimicrobial effects due to the teachings of Austin reciting that the use of a mixture of anti-microbial compounds can provide a broader anti-microbial spectrum and hence one more generally effective than

the individual components thereof, with polyhexamethylene biguanide, mercaptobenzothiazole, diiodomethyl-paratolyl sulphone being taught as examples.

12. Response to applicant's argument A.8 Claim 55.

Claim 55 depends from independent claim 45. The examiner reiterates in full her previous remarks recited in paragraphs 5 and 7. For the same reasons one of ordinary skill in the art would have been motivated to combine the teachings of Pillay and Austin to arrive at synergistic or additively beneficial antimicrobial compositions for the effective treatment of leather. One of ordinary skill in the art would have found it obvious to try the substitution of one known microbicide for another functionally equivalent known microbicide with an expectation of synergistic or additive antimicrobial effects due to the teachings of Austin reciting that the use of a mixture of anti-microbial compounds can provide a broader anti-microbial spectrum and hence one more generally effective than the individual components thereof, with polyhexamethylene biguanide, mercaptobenzothiazole, diiodomethyl-paratolyl sulphone being taught as examples.

13. Response to applicant's argument A.9 Claims 62 and 68.

For the purposes of this specific rejection, Claims 62 and 68 rise or fall according to the decision as to independent Claim 62. The examiner reiterates in full her previous remarks recited in paragraphs 5 and 7. For the same reasons one of ordinary skill in the art would have been motivated to combine the teachings of Pillay and Austin to arrive at synergistic or additively beneficial antimicrobial compositions for the effective treatment

of leather. One of ordinary skill in the art would have found it obvious to try the substitution of one known microbicide for another functionally equivalent known microbicide with an expectation of synergistic or additive antimicrobial effects due to the teachings of Austin reciting that the use of a mixture of anti-microbial compounds can provide a broader anti-microbial spectrum and hence one more generally effective than the individual components thereof, with polyhexamethylene biguanide, mercaptobenzothiazole, diiodomethyl-paratolyl sulphone, isothiazolinone being taught as examples.

14. Response to applicant's argument A.10 Claim 63.

Claim 63 depends from independent claim 62. The examiner reiterates in full her previous remarks recited in paragraphs 5 and 7. For the same reasons one of ordinary skill in the art would have been motivated to combine the teachings of Pillay and Austin to arrive at synergistic or additively beneficial antimicrobial compositions for the effective treatment of leather. One of ordinary skill in the art would have found it obvious to try the substitution of one known microbicide for another functionally equivalent known microbicide with an expectation of synergistic or additive antimicrobial effects due to the teachings of Austin reciting that the use of a mixture of anti-microbial compounds can provide a broader anti-microbial spectrum and hence one more generally effective than the individual components thereof, with polyhexamethylene biguanide, mercaptobenzothiazole, diiodomethyl-paratolyl sulphone, isothiazolinone being taught as examples.

15. Response to applicant's argument A.11 Claim 64.

Claim 64 depends from independent claim 62. The examiner reiterates in full her previous remarks recited in paragraphs 5 and 7. For the same reasons one of ordinary skill in the art would have been motivated to combine the teachings of Pillay and Austin to arrive at synergistic or additively beneficial antimicrobial compositions for the effective treatment of leather. One of ordinary skill in the art would have found it obvious to try the substitution of one known microbicide for another functionally equivalent known microbicide with an expectation of synergistic or additive antimicrobial effects due to the teachings of Austin reciting that the use of a mixture of anti-microbial compounds can provide a broader anti-microbial spectrum and hence one more generally effective than the individual components thereof, with polyhexamethylene biguanide, mercaptobenzothiazole, diiodomethyl-paratolyl sulphone, isothiazolinone being taught as examples.

16. Response to applicant's argument A.12 Claim 65.

Claim 65 depends from independent claim 62. The examiner reiterates in full her previous remarks recited in paragraphs 5 and 7. For the same reasons one of ordinary skill in the art would have been motivated to combine the teachings of Pillay and Austin to arrive at synergistic or additively beneficial antimicrobial compositions for the effective treatment of leather. One of ordinary skill in the art would have found it obvious to try the substitution of one known microbicide for another functionally equivalent known

microbicide with an expectation of synergistic or additive antimicrobial effects due to the teachings of Austin reciting that the use of a mixture of anti-microbial compounds can provide a broader anti-microbial spectrum and hence one more generally effective than the individual components thereof, with polyhexamethylene biguanide, mercaptobenzothiazole, diiodomethyl-paratolyl sulphone, isothiazolinone being taught as examples.

17. Response to applicant's argument A.13 Claim 45.

Claim 49 depends from independent claim 62. The examiner reiterates in full her previous remarks recited in paragraphs 5 and 7. For the same reasons one of ordinary skill in the art would have been motivated to combine the teachings of Pillay and Austin to arrive at synergistic or additively beneficial antimicrobial compositions for the effective treatment of leather. One of ordinary skill in the art would have found it obvious to try the substitution of one known microbicide for another functionally equivalent known microbicide with an expectation of synergistic or additive antimicrobial effects due to the teachings of Austin reciting that the use of a mixture of anti-microbial compounds can provide a broader anti-microbial spectrum and hence one more generally effective than the individual components thereof, with polyhexamethylene biguanide, mercaptobenzothiazole, diiodomethyl-paratolyl sulphone, isothiazolinone being taught as examples. One of ordinary skill in the art would have been further motivated to incorporate an additional leather microbicide, poly(oxyethylene(dimethylimino)ethylene(dimethylimino)ethylene dichloride), from the

teachings of Bryant because this is a preferred fungicide and Austin invites the inclusion of quaternary ammonium compounds with antimicrobial benefits.

18. Response to applicant's argument B.1 Claim 48.

No response is presented since this claim has been canceled by applicant.

19. Response to applicant's argument B.2 Claims 42 and 56.

The applicant argues that combination of Pillay (US 6,110,950) in view of Austin (US 5,290,810) and further in view of Rother (US 5,888,415) is improper because one of ordinary skill in the art would not have been motivated to substitute a component of a synergistic composition without a teaching that the synergism would be maintained.

The examiner asserts that the substitution of one known microbicidal compound for another functionally equivalent known microbicidal compound would have yielded predictable results to one of ordinary skill in the art at the time the invention was made. Specifically, Pillay teaches microbicidal compositions comprising propiconazole, applicant's claimed fungicide, and mercaptobenzothiazole, for treating leather by the instantly claimed methods, however does not teach the instantly claimed biguanide bactericide or tebuconazole. Austin, in the analogous art of treating leather to prevent bacteria and fungicide formation, clearly teaches mercaptobenzothiazole and polyhexamethylene biguanide as functionally equivalent antimicrobial compounds. Rother et al. teach the functional equivalence of propiconazole, tebuconazole and thiabendazole as protectants of leather from microbial attack. Because Pillay, Austin

and Rother all teach compounds for the microbicidal treatment of leather, it would have been obvious to one of ordinary skill in the art to substitute polyhexamethylene biguanide for mercaptobenzothiazole and tebuconazole or thiabendazole for propiconazole in the methods of Pillay because of the Austin and Rother teaching that these compounds are functionally equivalent for the purpose of providing antimicrobial benefits to leather.

Regarding applicant's arguments of destroying synergism, the examiner asserts that applicant has provided no basis for the arguments that one of ordinary skill in the art would not expect functionally equivalent compounds to also confer synergistic effects or additive effects. The examiner argues quite the opposite, rather that the teaching of Austin reciting that the use of a mixture of anti-microbial compounds can provide a broader anti-microbial spectrum and hence one more generally effective than the individual components thereof (column 5, lines 24-30) and the teachings of both mercaptobenzothiazole and polyhexamethylene biguanide by Austin in the list of such compounds suggests that an synergistic or additive effect may be quite likely and additional antimicrobial compounds would be quite desirable.

Regarding applicant's arguments that because polyhexamethylene biguanide, mercaptobenzothiazole, propiconazole, thiabendazole and tebuconazole are not homologs, analogs, isomers or structurally similar that substitution of one for the other would not be expected to provide synergism. Again the examiner cites the teachings in Austin which disclose a variety of nonhomologous, nonanalogous, nonisomeric and structurally dissimilar compounds which in combination would provide increased

antimicrobial benefits to leather than when used alone. Without clear experimental evidence that the synergistic or additive effects would be destroyed by substitution of known microbicide for another the applicant's arguments are conclusory. Applicants' arguments are conclusory statements not supported by factual evidence, see *In re Lindner*, 457 F.2d 506, 173 USPQ 356 (CCPA 1972).

20. Response to applicant's argument B.3 Claims 43 and 57.

Claim 43 depends from independent claim 23. Claim 57 depends from independent Claim 45. The examiner reiterates in full her previous remarks recited in paragraphs 5,7 and 19. For the same reasons one of ordinary skill in the art would have been motivated to combine the teachings of Pillay, Austin and Rother to arrive at synergistic or additively beneficial antimicrobial compositions for the effective treatment of leather. One of ordinary skill in the art would have found it obvious to try the substitution of one known microbicide for another functionally equivalent known microbicide with an expectation of synergistic or additive antimicrobial effects due to the teachings of Austin reciting that the use of a mixture of anti-microbial compounds can provide a broader anti-microbial spectrum and hence one more generally effective than the individual components thereof, with polyhexamethylene biguanide, mercaptobenzothiazole, propiconazole, thiabendazole and tebuconazole being taught as examples.

21. Response to applicant's argument B.4 Claim 66.

Claim 66 depends from independent claim 62. The examiner reiterates in full her previous remarks recited in paragraph 19. For the same reasons one of ordinary skill in the art would have been motivated to combine the teachings of Pillay, Austin and Rother to arrive at synergistic or additively beneficial antimicrobial compositions for the effective treatment of leather. One of ordinary skill in the art would have found it obvious to try the substitution of one known microbicide for another functionally equivalent known microbicide with an expectation of synergistic or additive antimicrobial effects due to the teachings of Austin reciting that the use of a mixture of anti-microbial compounds can provide a broader anti-microbial spectrum and hence one more generally effective than the individual components thereof, with polyhexamethylene biguanide, mercaptobenzothiazole, propiconazole, thiabendazole and tebuconazole being taught as examples.

22. Response to applicant's argument B.5 Claim 67.

Claim 67 depends from independent claim 62. The examiner reiterates in full her previous remarks recited in paragraph 19. For the same reasons one of ordinary skill in the art would have been motivated to combine the teachings of Pillay, Austin and Rother to arrive at synergistic or additively beneficial antimicrobial compositions for the effective treatment of leather. One of ordinary skill in the art would have found it obvious to try the substitution of one known microbicide for another functionally equivalent known microbicide with an expectation of synergistic or additive antimicrobial effects due to the teachings of Austin reciting that the use of a mixture of anti-microbial

compounds can provide a broader anti-microbial spectrum and hence one more generally effective than the individual components thereof, with polyhexamethylene biguanide, mercaptobenzothiazole, propiconazole, thiabendazole and tebuconazole being taught as examples.

23. Response to applicant's argument C.1 Claims 40 and 54.

The applicant argues that combination of Pillay (US 6,110,950) in view of Austin (US 5,290,810) and further in view of Lindner (US 6,228,382) is improper because one of ordinary skill in the art would not have been motivated to substitute a component of a synergistic composition without a teaching that the synergism would be maintained.

The examiner asserts that the substitution of one known microbicidal compound for another functionally equivalent known microbicidal compound would have yielded predictable results to one of ordinary skill in the art at the time the invention was made. Specifically, Pillay teaches microbicidal compositions comprising propiconazole, applicant's claimed fungicide, and mercaptobenzothiazole, for treating leather by the instantly claimed methods, however does not teach the instantly claimed biguanide bactericide or tebuconazole. Austin, in the analogous art of treating leather to prevent bacteria and fungicide formation, clearly teaches mercaptobenzothiazole and polyhexamethylene biguanide as functionally equivalent antimicrobial compounds. Lindner et al. teach the functional equivalence of propiconazole, zinc pyrithione and thiabendazole as providing leather with microbicidal benefits. Because Pillay, Austin and Lindner all teach compounds for the microbicidal treatment of leather, it would have

been obvious to one of ordinary skill in the art to substitute polyhexamethylene biguanide for mercaptobenzothiazole and zinc pyrithione for propiconazole in the methods of Pillay because of the Austin and Lindner teaching that these compounds are functionally equivalent for the purpose of providing antimicrobial benefits to leather.

Regarding applicant's arguments of destroying synergism, the examiner asserts that applicant has provided no basis for the arguments that one of ordinary skill in the art would not expect functionally equivalent compounds to also confer synergistic effects or additive effects. The examiner argues quite the opposite, rather that the teaching of Austin reciting that the use of a mixture of anti-microbial compounds can provide a broader anti-microbial spectrum and hence one more generally effective than the individual components thereof (column 5, lines 24-30) and the teachings of both mercaptobenzothiazole and polyhexamethylene biguanide by Austin in the list of such compounds suggests that an synergistic or additive effect may be quite likely and additional antimicrobial compounds would be quite desirable.

Regarding applicant's arguments that because polyhexamethylene biguanide, mercaptobenzothiazole, propiconazole, thiabendazole and zinc pyrithione are not homologs, analogs, isomers or structurally similar that substitution of one for the other would not be expected to provide synergism. Again the examiner cites the teachings in Austin which disclose a variety of nonhomologous, nonanalogous, nonisomeric and structurally dissimilar compounds which in combination would provide increased antimicrobial benefits to leather than when used alone. Without clear experimental evidence that the synergistic or additive effects would be destroyed by substitution of

known microbicide for another the applicant's arguments are conclusory. Applicants' arguments are conclusory statements not supported by factual evidence, see *In re Lindner*, 457 F.2d 506, 173 USPQ 356 (CCPA 1972).

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

Amina Khan

/Amina S. Khan/

Conferees:

/VASUDEVAN S. JAGANNATHAN/

Supervisory Patent Examiner, Art Unit 1796

/Gregory Mills/
TQAS 1700

Application/Control Number:
10/521,829
Art Unit: 1700

Page 26